Soldier System in NATO

Brief to the
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Mr. Vernon E. Shisler, Chairman TG/1
and
LtCol Koos Meijer, Deputy Chairman TG/1

Contents

- The changing role of the dismounted soldier
- NATO TG/1 as the soldier modernisation platform now and in the near future
- The TG/1 Expert’s teams
- TG/1 and the industry
- Summary

The soldier from 1915 till 2004

The soldier today

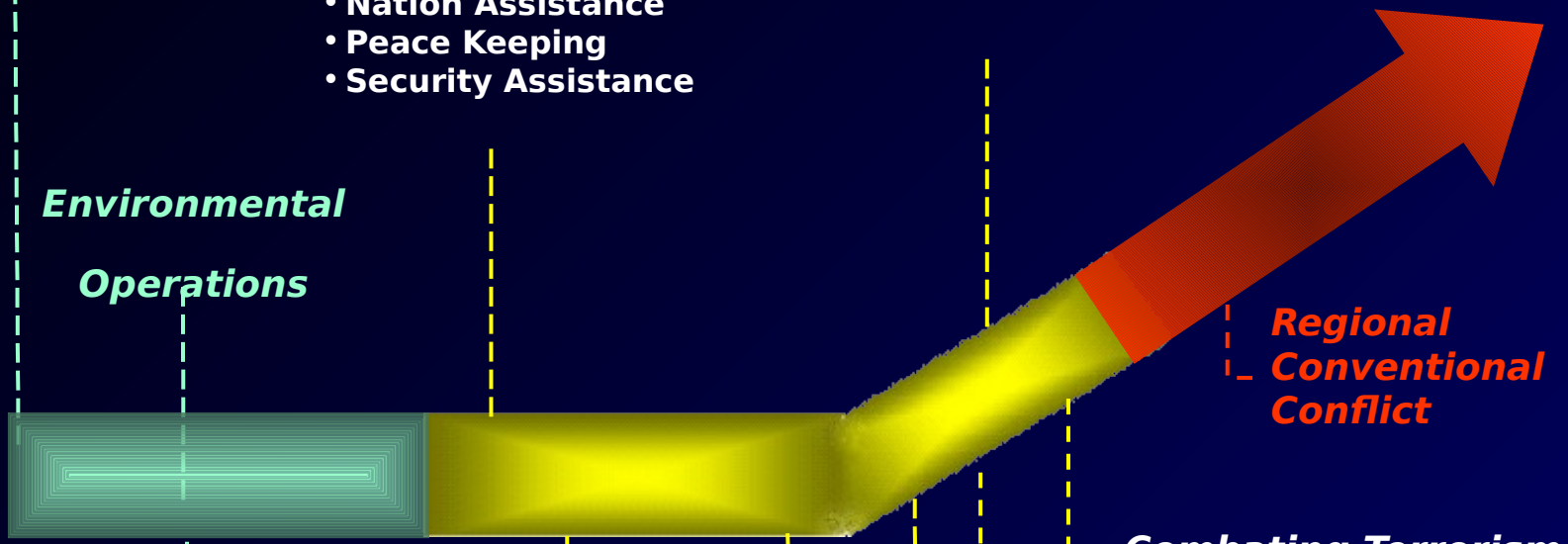
Soldier's spectrum of operations

Domestic Support
- Disaster Relief
- Civil Support

Peace Operations
- Peace Building/Making
- Military to Military Contacts
- Arms Control
- Nation Assistance
- Peace Keeping
- Security Assistance

Limited Conflict
- Raids
- Strikes
- Insurgency & Counterinsurgency

Nuclear War
- Strategic Weapons
- Tactical Weapons



Soldier´s in joint operations

NATO activities on Soldier Modernisation till now

- 1993 - 1994 Prefeasibility study Soldier Modernisation
- 1994 - 2000 LG/3/WG/3 on Soldier Modernisation
- 2000 - 2005 NAAG/TG/1 on Soldier System Interoperability

The Soldier System Concept

Integration of *everything* the soldier

- ***Wears***
- ***Carries***
- ***Consumes***

for enhanced individual and collective (small unit) capability within their national command control structure.

The balance

The final solution will be a
compromise between the
capability areas

- **C4I**
- **Lethality**
- **Mobility**
- **Survivability**
- **Sustainability**

and must have a relation w

- **Education**
- **Training**

The Complexity of Soldier System

Night Vision

Protective Eyewear

Radio

Computer

Ballistic Protection

Load Carrying

Weapon System

Gas Mask

Environmental Clothing

Integrate "each" into a Soldier System

Integrated Operating System

- Modular design
- Mission tailor-able
- Links the individual soldier to the Digitized Battlefield
- Increased survivability

Soldier capability

What should be the soldier's capability?

LVSRHMLSFW

Light, Very Short Range, High Mobility, Low Speed, Flexible Weapon System

Soldier 2000 Demonstration

Bergen op Zoom
The Netherlands June 2000

- For Senior NATO Officials and Military
- Presentations
- Static Displays
- Live Firing Exercises
- Tactical Demonstrations

Mission TG/1

Ensure interoperability between future national soldier systems

Current place TG/1

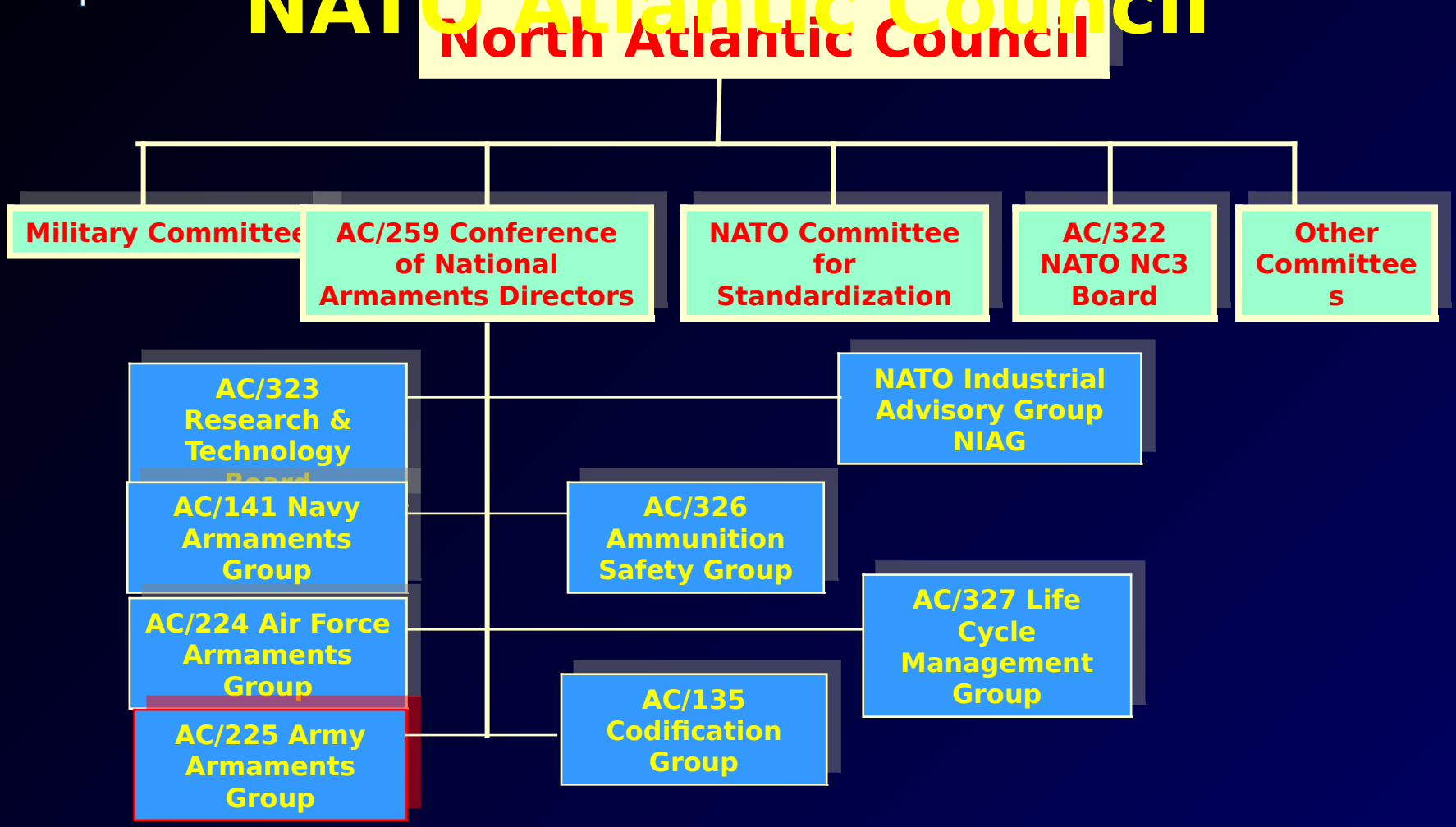
Level 2 group

under the

NATO Army Armaments Group

Topical Group 1 on Soldier System Interoperability

NATO Atlantic Council


North Atlantic Council
Military Committee
AC/259 Conference of National Armaments Directors
NATO Committee for Standardization
AC/322 NATO NC3 Board
Other Committees
AC/323 Research & Technology Board
AC/141 Navy Armaments Group
AC/224 Air Force Armaments Group
AC/225 Army Armaments Group
NATO Industrial Advisory Group NIAG
AC/326 Ammunition Safety Group
AC/135 Codification Group
AC/327 Life Cycle Management Group

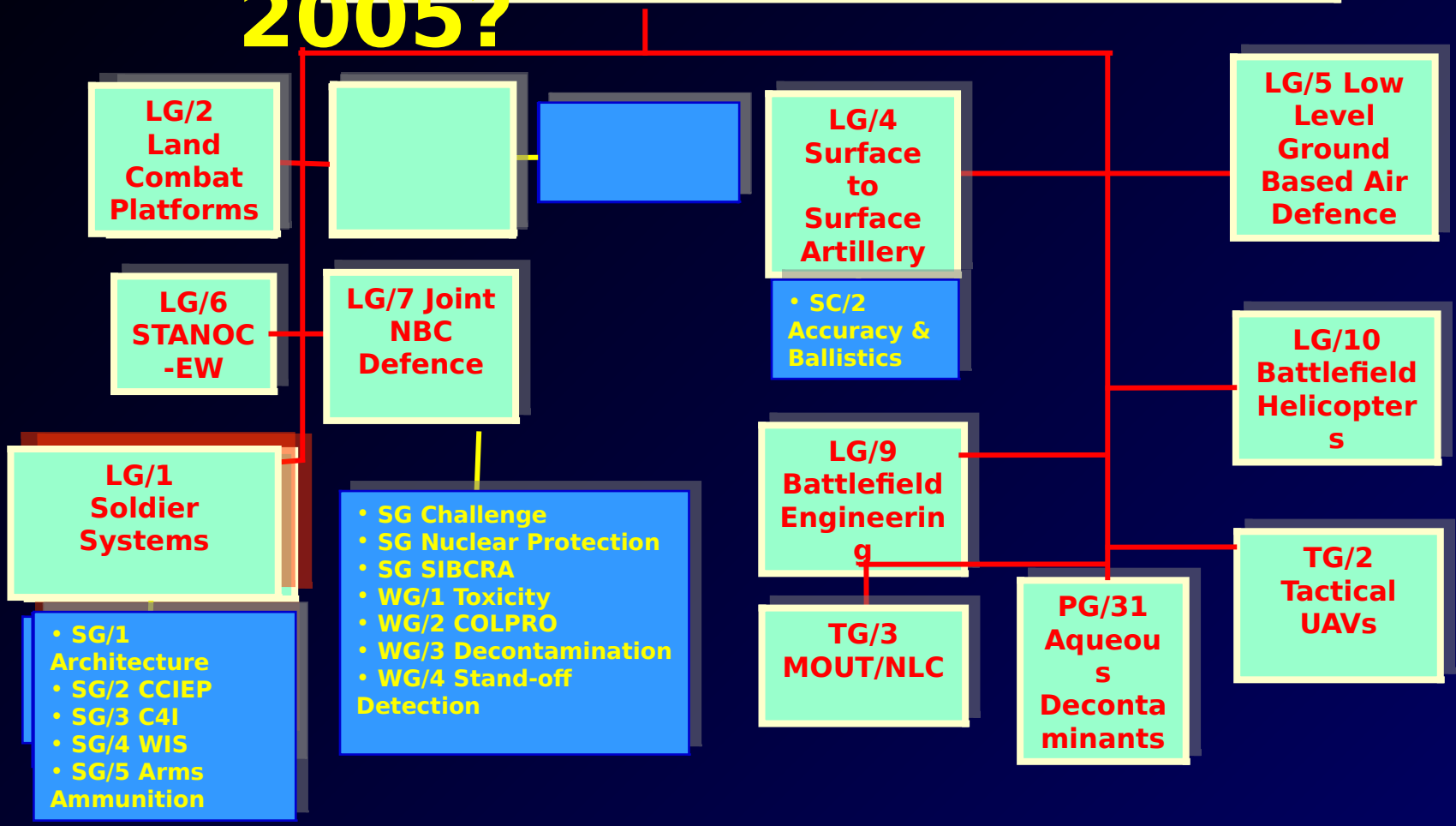
Army Armaments Group 2004

AC/225 Army Armaments Group

- LG/2 Close Combat Armor
- LG/3 Close Combat Infantry
  - SG/1 Small Arms Ammunition
- LG/4 Surface to Surface Artillery
  - SC/2 Accuracy & Ballistics
- LG/5 Low Level Ground Based Air Defence
- LG/6 STANOC -EW
- LG/7 Joint NBC Defence
  - SG Challenge
  - SG Nuclear Protection
  - SG SIBCRA
  - WG/1 Toxicity
  - WG/2 COLPRO
  - WG/3 Decontamination
  - WG/4 Stand-off Detection
- LG/9 Battlefield Engineering
- LG/10 Battlefield Helicopters
- TG/1 Soldier System Interoperability
  - ET Architecture
  - ET CCIEP
  - ET C4I
  - ET WIS
- TG/2 Tactical UAVs
- PG/31 Aqueous Decontaminants

Topical Group 1 on Soldier System Interoperability

Army Armaments Group 2005?



Topical Group 1 on Soldier System Interoperability

Army Armaments Group 2005?

AC/225 Army Armaments Group

- **LG/1 Soldier Systems**
  - SG/1 Architecture
  - SG/2 CCIEP
  - SG/3 C4I
  - SG/4 WIS
  - SG/5 Arms Ammunition
- **LG/2 Land Combat Platforms**
- **LG/4 Surface to Surface Artillery**
- **LG/5 Low Level Ground Based Air Defence**
  - SC/2 Accuracy & Ballistics
- **LG/6 STANOCEW**
- **LG/7 Joint NBC Defence**
  - SG Challenge
  - SG Nuclear Protection
  - SG SIBCRA
  - WG/1 Toxicity
  - WG/2 COLPRO
  - WG/3 Decontamination
  - WG/4 Stand-off Detection
- **LG/9 Battlefield Engineering**
- **LG/10 Battlefield Helicopters**
- **TG/2 Tactical UAVs**
- **TG/3 MOUT/NLC**
- **PG/31 Aqueous Decontaminants**

Participating Nations

- The Netherlands
- Norway
- Portugal
- Spain
- Turkey
- United Kingdom
- United States
- Czech Republic
- Slovakia
- Romania
- Belgium
- Canada
- Denmark
- France
- Greece
- Germany
- Italy
- Hungary
- Lithuania
- Slovenia
- Austria
- Azerbaijan
- Sweden
- Switzerland
- Ireland
- Ukraine
- Finland
- Croatia
- Australia

Critical Areas for Standardization

- C4I
- Power
- Combat Identification
- Interfaces

Take C4I efforts to the individual level

- To facilitate the exchange of information across force boundaries and in mixed force operations at soldier to soldier level
- Defining map related symbology
  - ✓ Specifying a NATO format for identifying data (building on standard NATO symbols)
  - ✓ Creating a NATO data exchange software library
  - ✓ Generating STANAG for information interoperability

Power

- TG/1 has drafted a STANAG to provide the ability to share power on the battlefield
- TG/1 approved it at the Fall meeting 04
- NATO staffing in process

Combat Identification

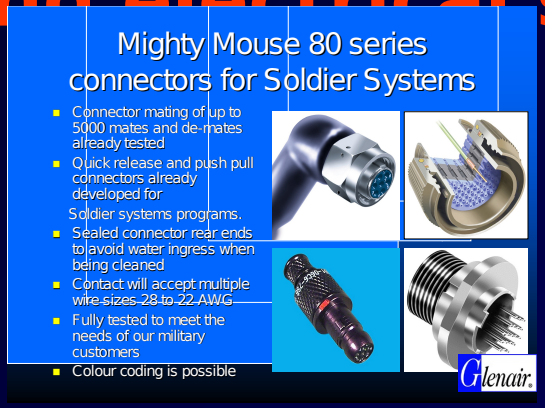
- LG/6 has completed and approved a NATO Staff Requirement
- Agreement on laser frequency
- STANAG is under construction

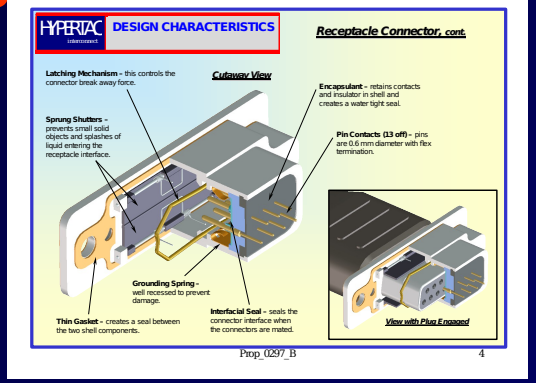
Integration

Modularity and interoperability are essential elements of each soldier system.

Essential elements to attain this are the standardization of connectors and electrical signals

Deutsch Warrior Programs Connectors
Tomorrow's Infantry Warrior - Solutions
Over molding
Composite connector with metalisation
Lanyard push pull locking system
Sealing conductor gasket
More than 5000 mating
Easy mounting (no tools)
Connector sealed when mated and unmated
Dead face protection system

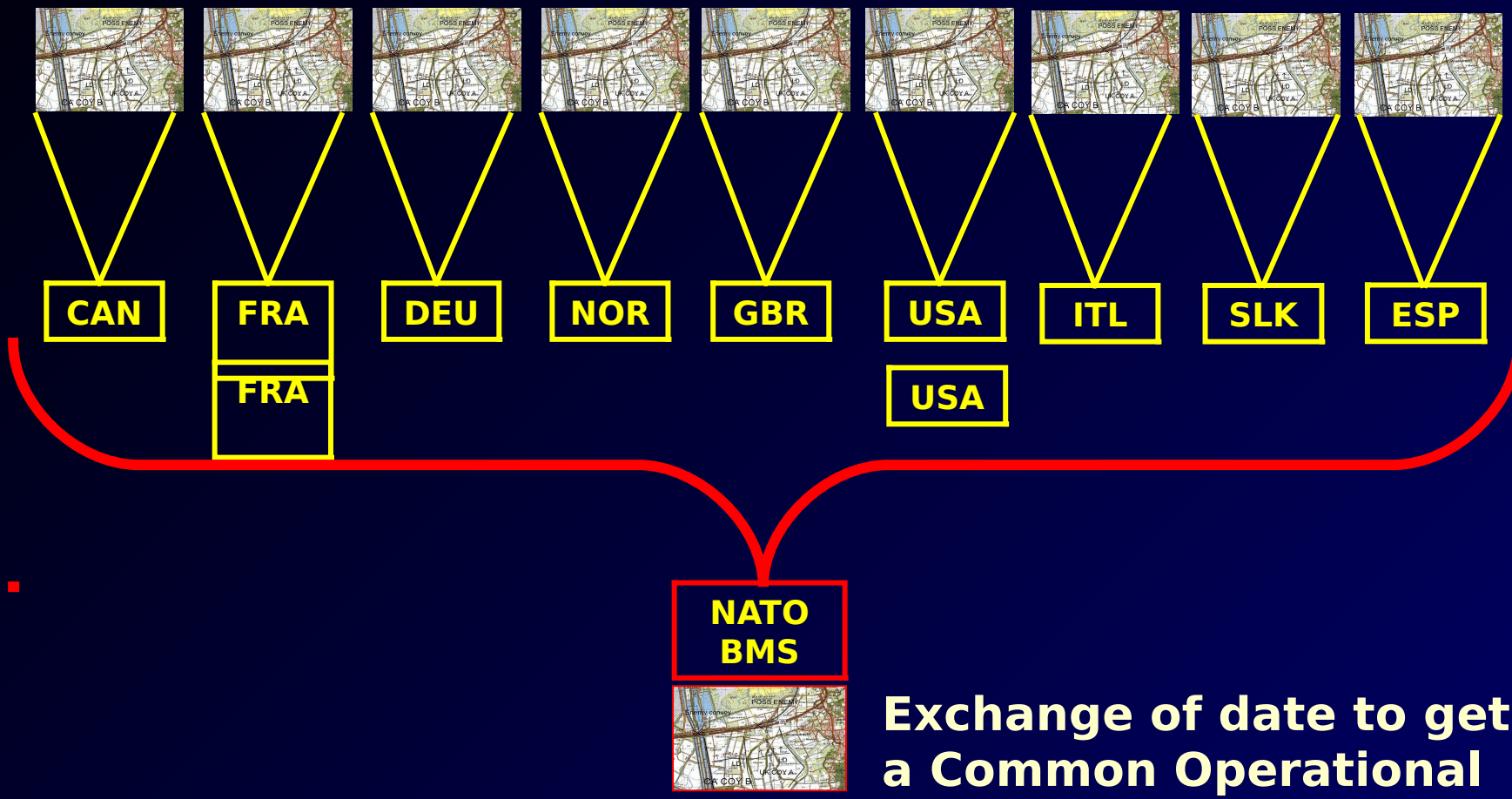

Mighty Mouse 80 series connectors for Soldier Systems
Connector mating of up to 5000 mates and de-mates already tested
Quick release and push pull connectors already developed for Soldier systems programs.
Sealed connector rear ends to avoid water ingress when being cleaned
Contact will accept multiple wire sizes 28 to 22 AWG
Fully tested to meet the needs of our military customers
Colour coding is possible
Glenair.


HYPERTAC
DESIGN CHARACTERISTICS
Receptacle Connector, cont.
Cutaway View
Latching Mechanism – this controls the connector break away force.
Sprung Shutters – prevents small solid objects and splashes of liquid entering the receptacle interface.
Encapsulant – retains contacts and insulator in shell and creates a water tight seal.
Pin Contacts (13 off) – pins are 0.6 mm diameter with flex termination.
Grounding Spring – well recessed to prevent damage.
Thin Gasket – creates a seal between the two shell components.
Interfacial Seal – seals the connector interface when the connectors are mated.
View with Plug Engaged
Prop_0297_B
4

Expert teams TG/1

- C4I
- Power
- Architecture
- Weapon Systems
- Head Born Systems
- Combat Clothing Individual Equipment and Protection (CCIEP)

C4I demo Hammelburg (DEU) Oct 04



Exchange of date to get a Common Operational Picture

Demonstration to TG/1 Oct 04

Expert team Weapon System

- Not an integrator
- Creating interoperability between the different small arms in use now or in the future
- Standardisation connecting and power sources
- Starting NATO/RTO study

GE G36

TG/1 and industry

- In 2003 an industrial initiative led to the

Soldier System Standardisation Industrial Working Group

- The aim of this group is:
  - ✓ to address interoperability issues and seek harmonization of interface standards
  - ✓ to provide support to the NATO and governmental initiatives on soldier modernisation

TG/1 and industry

Participants in the SSSIWG are

- ✓ **EADS Dornier (GE)**
- ✓ **Marconi Selena Comm SpA (IT)**
- ✓ **Thales Defence Ltd (UK)**
- ✓ **TNO (NL)**
- ✓ **Thales Comm (NO)**
- ✓ **General Dynamics (USA)**
- ✓ **Sagem (FR)**

Summary - 1

- TG/1 is the lead multinational body in the area the soldier system
- TG/1 approach is adopted worldwide
- TG/1 intends to work together with the SSSIWG to help implement the ultimate goal: interoperability at soldiers level
- TG/1 is one of the pushers to come to a future Multinational Force

Summary - 2

- Coordination with many NATO Groups in and outside CNAD is going on
- TG/1 will be renamed LG/1 Soldier Systems
- LG/1 will cover all the components of the soldier system

“When the smoke cleared away, it was the man with the sword, or the crossbow, or the rifle who settles the final issue on the battlefield”